

Variable	Mean	SD	Min	Max
Age	31.2	4.5	22	45
Gender	50% Male			
Education	12.5	1.2	10	15
Income	1500	200	1000	2000
Marital Status	60% Married			
Occupation	30% Professional			
Religion	70% Hindu			
Health Status	85% Good			
Smoking Status	20% Smoker			
Alcohol Consumption	10% Regular			
Stress Level	45%			
Life Satisfaction	65%			
Family Size	3.5	1.5	1	6
Home Ownership	75%			
Vehicle Ownership	40%			
Travel Frequency	20%			
Exercise Frequency	15%			
Dietary Habits	60%			
Sleeping Patterns	70%			
Work-Life Balance	55%			
Community Involvement	30%			
Volunteering Hours	10			
Charitable Donations	5%			
Political Participation	20%			
Environmental Awareness	70%			
Waste Recycling Rate	80%			
Water Conservation	90%			
Energy Efficiency	75%			
Green Building Practices	60%			
Sustainable Living Score	65			

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ABSTRACT

First, an operator sequentially teaches the start point A, the end point F and junction points B, C, D, E on the welding path by moving the torch head by jog feed without paying attention to the torch orientation. Next, a reference plane to define the orientation of the torch is specified, and an inclination angle and a forward angle representing the torch orientation be inputted into a robot controller. On the basis of these inputted angle data and the taught data, a basic welding orientation is automatically calculated. Further auxiliary points are set around the junction points B through E each forming corner parts connecting straight lines; tool vectors which may give a smooth torch orientation change through the corner parts are automatically calculated for the auxiliary points and the junction points; and on the basis of the results, a welding program is produced. Among elements which determine the torch orientation, an element relating to the rotation around the torch axis reflects the state at the time of teaching of points A to E.